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Fig. 1:

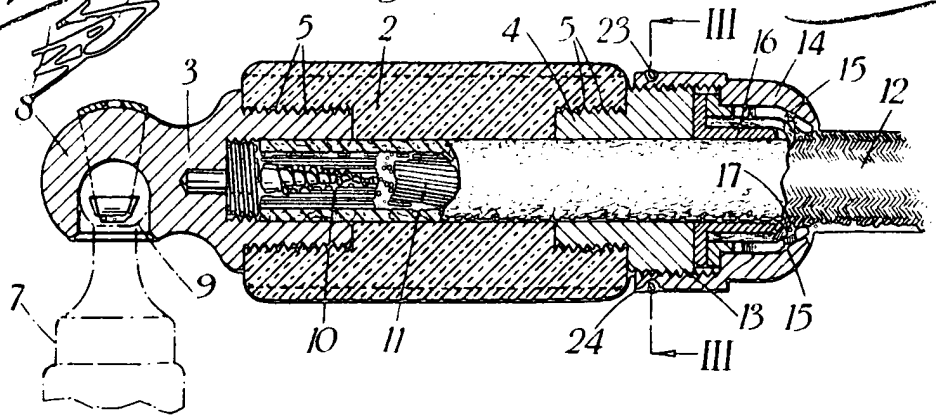
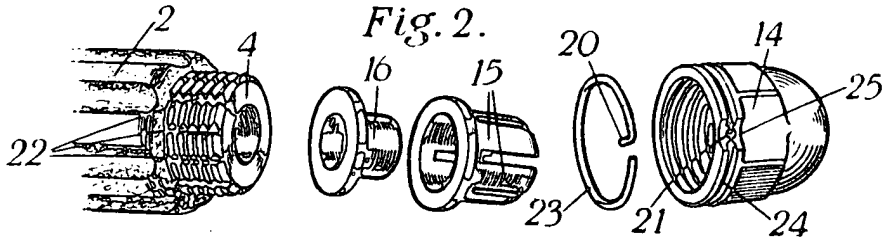


Fig. 2.



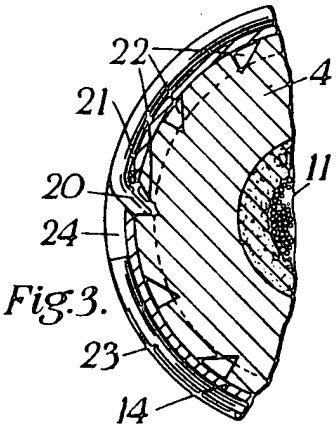


Fig. 3.

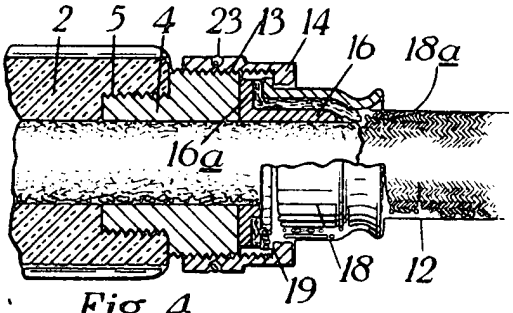


Fig. 4.

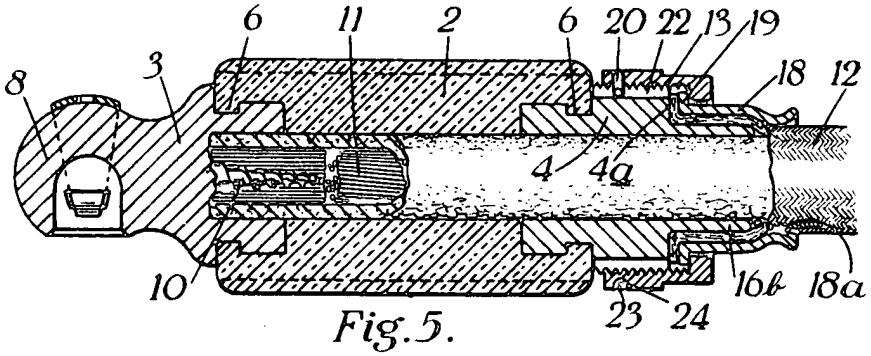


Fig. 5.

[This Drawing is a reproduction of the Original on a reduced scale.]

Malby & Sons, Photo-Lith

439-427

PATENT SPECIFICATION

460,156

Application Date: Sept. 5, 1935. No. 24761/35.

Complete Specification Left : Sept. 2, 1936.

Complete Specification Accepted: Jan. 22, 1937.

PROVISIONAL SPECIFICATION

Electrical Connectors

I, EDWIN BOLTON, a British Subject, of 186, Hearsall Lane, Coventry, Warwickshire, do hereby declare the nature of this invention to be as follows:—

This invention relates to connectors between a sparking plug or other electrical device and a flexible conductor, particularly such as has a flexible metal casing round its insulation, the connector being adapted for quick attachment to the device and for relatively permanent attachment to the conductor.

The main object of the present invention is to provide a connector of this kind which will be very satisfactory for use in the ignition systems of aircraft engines.

The connector, according to the invention, comprises a conducting member held at one end of a hollow insulator and adapted for quick attachment to the device and for relatively permanent attachment, in the interior of the insulator, to the end of the conductor, while the other end of the insulator, or a second conducting member held thereby, carries spring fingers adapted to be forced into contact with the periphery of the metal casing or other covering of the conductor by the screwing to the said other end or member of a nut which can subsequently be locked in position.

Preferably there are two conducting members, and they, the spring fingers, and the nut are preferably made of cadmium-coated brass, and for preference the insulator consists of vulcanite or other mouldable insulating material into the ends of which the conducting members are moulded, appropriate portions of their peripheries being serrated as necessary to facilitate their being secured in position. The one that is adapted for attachment to the device is preferably formed externally of the insulator with a socket arranged in the manner described in specification No. 323,976, in respect of which I am the patentee, the device carrying the ball adapted to take into and to be detachably held in the socket.

In the interior of the insulator this said one conducting member carries a co-axial screw-threaded pin which is preferably integral with it, and on to this can be screwed the end of the flexible conductor formed of a plurality of strands of wire in a known manner.

In the interior of the insulator the metal covering, when the conductor is so fitted, is removed, the surface of the insulation round the conductor engaging the inner periphery of the insulator, between the conducting members, and of the said one conducting member.

The other conducting member is externally screw-threaded to receive a nut. The spring fingers are preferably carried by a ring, being in the form of a split sleeve, adapted to be spigotally supported on a reduced end of this other conducting member. The ends of the fingers are preferably rounded internally, to engage the metal casing or other covering of the conductor without piercing it, and externally to co-act with a corresponding internal taper provided on an end portion of the nut when this is screwed on to the screw-thread of the conducting member.

A preferred form of locking means, for retaining the nut in position, consists of a spring pin extending transversely through the nut and adapted to co-act with one of a plurality of longitudinal serrations provided in the screw-thread. These serrations may be bevelled along one edge so that the pin will slide out of them during screwing up; but the nut cannot be unscrewed without the pin being withdrawn.

Conveniently the spring pin consists of the bent end of a circlip carried in a circumferential peripheral groove of the nut. A longitudinal groove may be provided in the periphery of the nut to receive a pointed implement by means of which the pin end of the circlip can be levered out of the serrations when the nut is to be unscrewed.

By the invention the various parts can be very satisfactorily secured to one another, good conductivity being obtained at all times by the different connections, and the whole connector can be inexpensively manufactured. In ordinary condi-

[*Price* 1/-]

The outer end of the sleeve 18 is grooved as shown to provide an internal circumferential ridge 18*a* which closely fits around the casing and may form with the end of the sleeve 16 or 16*a* an additional means of holding the casing.

Preferably the two conducting members, the nut, and other metal parts of the connector are made of cadmium-coated brass.

A preferred form of locking means, for retaining the nut in position, consists of a spring pin 20 extending transversely through a hole 21 in the nut and adapted to co-act with one of a plurality of longitudinal serrations 22 provided in the screw-thread. These serrations may be bevelled along one edge as shown in Figure 3 so that the pin will slide out of them during screwing up; but the nut cannot be unscrewed without the pin being withdrawn.

Conveniently the spring pin 20 consists of an inturned end of a circlip 23 carried in a circumferential peripheral groove 24 of the nut. A longitudinal groove 25 may be provided in the periphery of the nut to receive a pointed implement by means of which the pin end of the circlip can be levered out of the co-acting serration when the nut is to be unscrewed.

By the invention the various parts can be very satisfactorily secured to one another, good conductivity being obtained at all times by the different connections, and the whole connector can be inexpensively manufactured. In ordinary conditions the joint between the conductor and the connector would not require to be broken, but at any time the connector can be quickly removed from the sparking plug or other electrical device with which it is associated.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A connector, of the kind specified, where the said conducting member extends to the exterior of the insulator and is there formed with a socket to receive a ball part on the said device, the socket carrying quickly-releasable spring means by which the ball part can be retained in the socket.

2. A connector, according to Claim 1, where the socket and spring means are arranged in accordance with my Patent No. 323,976

3. A connector, according to Claim 1 or 2, having means at the opposite end of the insulator, by which a flexible casing of the conductor is held, including a sleeve with spring fingers adapted to be forced into contact with the flexible casing on the screwing up of a lockable nut.

4. A connector, according to Claim 3, where the nut is locked by means of a circlip carried in a circumferential groove in the nut and having an inturned end extending through the nut to co-act with one of a number of longitudinal serrations on the screw-thread with which the nut co-operates.

5. The complete connector substantially as described with reference to Figures 1 to 3 or Figure 4 or Figure 5 of the accompanying drawings.

Dated this 1st day of September, 1936.
WALFORD & HARDMAN BROWN,
Chartered Patent Agents,
Roslyn Chambers, Warwick Road,
Coventry, Warwickshire.

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